THE ELEMENTARY ENGLISH REVIEW

VOL. XII APRIL 1935 No. 4

Viewpoints Underlying the Study of Reading Disabilities*

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EDITOR'S NOTE: This is one of three papers discussing the *Third Annual Research Bulletin* of The National Conference on Research in Elementary School English. The other two papers, by Dr. Durrell and Dr. Gray, also appear in this issue. The *Bulletin* is appearing serially in THE REVIEW, beginning in the March number.

IN THIS address I shall discuss the viewpoints which seem to be embodied in experimental work upon the causes of disability and types of diagnosis and remedial instruction in reading.

Viewpoints Concerning the Causes of Disability in Reading

Early work upon the causes of disability in reading tended to establish the notion that failure resulted from some single type of organic deficiency, such as a constitutional factor described as "congenital alexia," "word blindness," and the like. This older viewpoint has led many persons to wait, often hopefully, for an announcement concerning the discovery of *the* cause of reading disability. This expectation has been encouraged, perhaps unintentionally, by a number of statements made within the last few years. For example, one investigator only recently declared that of the disabilities in reading studied by him, approximately 85% were subject to a measurable degree of eye-muscle imbalance. Another investigator developed a theory in which most, if not all, serious reading disabilities were accounted for in terms of a lack of cerebral dominance. Another reported that among the reading disabilities studied by him, approximately one third were left-handed.

These are merely illustrations of a general tendency and a not infrequent point of view represented both by teachers and investigators. I think it may be said, in the light of the results of recent investigations, that this viewpoint is not represented in the list of excellent studies summarized in the *Third Annual Research Bulletin* of the National Conference on Research in Elementary School English. For example, investigations by Betts, Fendrick, and others fail to show that muscular imbalance is a cause of any large proportion of reading defects. In Mr. Fendrick's study, muscular imbalance appeared no more frequently among those

* Address delivered before the National Conference on Research in Elementary School English, Atlantic City, February 26, 1935.

with reading defects than among normal readers. Dr. Betts' work on the initial stages of reading tends to show that muscular imbalance is a factor of importance, but its importance is no greater than that of innumerable other sources of difficulty. Similarly, a series of studies, such as those of Marion Monroe, Gates and Bennett, Crider, Phillips, Bennett, Bond and Fendrick, Hildreth, and others, seems to me to produce no evidence to support the assumption that reading disability is usually, or even ever, caused by some mysterious lack of cerebral dominance. At least a dozen studies now completed tend to show that left-handedness, instead of being an outstanding source of difficulty in reading, is at most either a rather rare or unimportant factor.

The point of view reflected in the studies selected for the present *Bulletin* is that many different factors, individually or collectively or in some special combination, may be involved in the production of reading difficulty. This is shown in the wide range of constitutional factors which have been studied. For example, note the studies of many aspects of vision, visual perception, auditory perception, phonetic aptitudes, intelligence, associative learning, hand and eye dominance, imagery, personality traits, mirror-writing tendencies, and many sorts of physical handicaps. In many instances, as in the work of Betts and Eames on vision, it is clear that the investigators are determined to ascertain the extent to which any and every conceivable limitation may influence the learning of reading. Indeed, in certain respects, these investigators have pushed the study of visual defects to a point well beyond that which the ophthalmologist is capable of making. They devised inventions, tests, and apparatus especially for the purpose of appraising the efficiency of the eye in actual work such as would be involved in reading. Here is promise not only of important contributions to reading diagnosis and the normal reading process, but also to the diagnosis and correction of visual defects. This specialization and intensification of research is becoming rather characteristic of the work in reading diagnosis. It is leading to some of the most admirable types of technical research to be found in the field of education. It is certain to result in important contributions, not only to the understanding of reading defects and normal reading, but to the management of young people in other activities.

The range and intensity of work upon constitutional factors may seem to imply that students in this field are committed to the viewpoint that most difficulties in reading spring directly from such organic defects or characteristics. A careful reading of the more important studies, however, will show that it is usually assumed that such constitutional factors are merely predisposing causes and that they exert a markedly unfavorable influence upon reading achievement only under certain conditions. It will be noted, also, that many of the investigations are so designed as to provide an appraisal of different sorts of relevant conditions. For example, it will be noted in the studies of Betts, Dearborn, Fendrick, Eames, and others that a surprisingly large proportion of children subject to reading defects have some degree of visual difficulty. Some of these investigators, however, have utilized a control group technique in which children equivalent in intelligence, amount of schooling, social-economic background, and in other respects to the reading defects, are studied with the same instruments and with the same care. In one such study—that of Fendrick—it was found that whereas 43% of the reading defects had defective vision, 30% of the control group had the same type of defects. Here is clear evidence that the visual defect, only under certain conditions or when combined with certain other handicaps or when dealt with in some particular way, leads to reading trouble.

Many of the studies have been formulated in such a way that certain additional handicaps or certain compensating factors can be detected. Thus, both Dearborn and Betts point to the fact that in certain cases a pupil has within the area of vision itself varied degrees of ability to compensate for his difficulty. In other cases, as in studies by Birdsall, Durrell, Gray, Hegge, Monroe, Teagarden, and others, the role of intelligence as a compensating factor for other disabilities is discernible.

It is a notable fact, however, that despite the care with which many workers are endeavoring to secure measures or appraisals of all the factors which might contribute to success or failure in reading and to relate them to each other, few, if any, have utilized some of the highly technical statistical devices which have proved successful in the study of "general" or "group" factors or "constellation" of factors in intelligence testing. To be sure, Deputy, Gates, and others have used partial and multiple correlation techniques, but there remain few, if any, analyses by the more elaborate procedures developed by Kelley, Thurstone, Spearman, Hotelling, and others. Some work along this line is, however, now under way on data obtained in several investigations by the present writer. This work is being done under the technical supervision of Dr. Joseph Zubin.

An interesting and significant feature of the select list of studies summarized in the *Research Bulletin* is the appearance of a number of investigations of classroom conditions, materials, and methods. Mr. Bond's study shows, for example, that the influence of difficulty in hearing depends greatly upon the methods of instruction employed in school. Under a program of oral and phonetic teaching, defects in hearing have serious consequences on reading; but in another program in which phonetics and oral instruction are not so fundamental, defects in hearing relatively infrequently result in serious difficulty. The significance of this investigation of reading disabilities is greatly enlarged by the results of such studies as Connelly's investigation of the influence of position of pupils in the classroom. Thus, Connelly found that, in general, pupils sitting in the front of the room had an advantage over those sitting in the rear. Considering Connelly's results in connection with those obtained by Bond, one might expect that a pupil with a certain hearing difficulty might learn to read normally if he had the fortune to have the front seat, whereas he might become a serious reading problem if he were placed in the rear seat. Other studies of classroom conditions by Davis, Cutright and Anderson, Luckiesch and Moss, show the great influence of environmental factors in the production of difficulties in reading. For example, it is possible that a child with a visual weakness may be a poor reader if he happens to be seated at a point of especially low illumination or far from the blackboard, whereas in better conditions he might have learned to read successfully. Peck's work in the use of large type in sight-saving classes points to other possibilities of reading defect coming as a result of placing a constitutionally-handicapped pupil in an unfavorable position. Studies of this type are of extremely great importance. Needless to say, studies of this type can and should advance hand in hand with the development of better instruments and greater information concerning various constitutional handicaps. I believe that the results summarized in the *Research Bulletin* point to the likelihood that many of the important problems in reading can be solved only by understanding the relationships between constitutional factors and various environmental conditions.

Among the schoolroom conditions which have a great influence upon success in learning to read are the concrete instructional materials. It is gratifying to

find that there is increased activity in the study of such materials, both in relationship to reading difficulties and the normal process of learning. Studies by Buckingham, Blackhurst, and others of the size of type provide data of value in both connections. The study of different types of materials and organizations for remedial instruction, such as those made by Davis, Hegge, Raguse, Unzicker, Yoakam, Cosgrave, Monroe, Gates, and others reveal the fact that wide variations in materials must be made to meet the diverse patterns of interest and aptitude found among young learners. There is substantial evidence, moreover, that certain children may fail to learn because the material is too difficult or too complex, or too dependent upon one type of technique, or otherwise unsuited to their particular interest and abilities. Children who flounder completely under a "natural or largely unguided procedure" may learn to read quite readily when they are given definite instruction and guidance. Needless to say, the more the child is handicapped by constitutional or other limitations, the greater the need that the materials be nicely adjusted to his aptitudes and limitations. The results of the studies of the exceptional cases are certain to be of value not only for the remedial instruction of the future, but for preventive work in the ordinary classroom.

Individual remedial work conducted by or under the supervision of Gray, Fernald, Kellar, Durrell, Monroe, and many others, has proved rather generally to be highly effective in teaching children who had previously failed to learn to read. Perhaps even more significant from a theoretical point of view are the results obtained from the New York City project in remedial reading. In this case, beginning January, 1934, approximately five hundred unemployed teachers were assigned by the Civil Works Administration to devote full time to remedial instruction. Although practically all of these teachers had had relatively little teaching experience and no previous training in diagnosis or remedial work in reading, and despite the fact that they began with the most serious reading problems which could be found in the schools of New York City, they were successful in teaching all but a very small percentage—probably not more than five per cent—to learn to acquire ability to read or greatly to increase their competence in reading. Among the eight thousand pupils who have been given remedial instruction by these teachers since the beginning of the project, is to be found the usual percentage of children defective in vision, hearing, motor control, and emotional stability. Despite these handicaps and often with very inadequate information about them, these relatively inexperienced remedial teachers taught the children to read. These results point rather conclusively to the fact that there are factors involved in individual face-to-face instruction in which the teacher studies the learner's needs, difficulties, and successes from day to day, which are of paramount importance in the development of reading ability. They indicate that large classes, inadequate supplies and varieties of materials, inadequate information about the hearing, vision and other limitations of the pupils, the inability of the typical teacher to individualize instruction, to provide individual guidance, and to check up on successes and failures from day to day are responsible for a large number of the difficulties in reading. It is to be hoped that this is the case since it is, at least theoretically, much easier to improve teaching materials, classroom conditions, or even to reduce the size of classes or to give teachers psychological or other technical assistance, than to eliminate human limitations.

Viewpoints Concerning Reading Readiness

It is apparent in the studies summarized in the *Bulletin* that the problem of read-

ing readiness and reading maturity, long a favorite topic of discussion among educational theorists, is to be subjected to careful scientific investigation. The study by Deputy was a definite step toward the determination of the role of certain constitutional factors such as intelligence, visual perception, and memory in reading readiness. Later, studies by Dr. Ladd and others have dealt with home conditions, play interests, and various environmental factors. Dr. Betts' more recent work points to the importance of the maturation level of physiological factors, particularly vision. Bond's investigation suggests the importance of determining the status of audition, word-discrimination, and phonetic insight. The largest investigation in our program this year at Teachers College is a study of a number of factors in relation to success in the initial stages of reading. For some years, another group has been making a study of various factors in the Horace Mann School. These studies are important in relationship not only to the question of the optimum time of beginning normal instruction, but also to the determination of causes of reading disability. It is possible, for example, that a visual weakness during the initial stages of reading instruction may have been responsible for a child's failure to learn, and that when examined two or three years later, the visual defect has been outgrown and is therefore not discernible.

In investigating this field certain cautions must be exercised. First, it must be realized that various visual, auditory, and other defects will be found among the pupils at the age of beginning reading as they are found at later ages. It should not be too hastily concluded, even if a pupil's failure in learning to read under certain conditions can be reasonably traced to immature vision or immature phonetic insight, that this child is not ready to learn to read or constitutionally too immature to learn. The reason for this has been indicated in the studies given above. By more sagacious choice of materials and methods and a better adjustment to this pupil's equipment, he may learn readily, and greatly enjoy and profit from the experience. It is important to note that most studies on reading readiness heretofore made have merely determined the success which children have in some conventional type of reading instruction. It is conceivable that, through a radical change in the character of the materials and methods and all the related activities, "readiness" would seem to appear at quite different ages. To be specific, I myself believe that it would be theoretically possible to develop a program which would enable children to learn to read quite readily at four years of age. It would likewise be possible to develop another initial program in reading which would be too difficult for most children until they were eight or nine years of age. We do not need to assume that the program of teaching beginning reading is forever settled and that it is merely a matter of selecting the children who can successfully proceed through it. It is still possible radically to change the initial programs in reading to make them adjustable to a wide range of intellectual and, in general, constitutional levels. The decisive criterion is probably a social rather than a psychological one. The time to begin reading is the time when learning to read will be individually the most satisfying and helpful and socially the most fruitful period. I believe that we can design materials and methods to enable children to learn to read successfully at this age, whatever it may be.

Points of View Concerning Types of Reading Defects

No one can read the results of the many splendid investigations of disabilities in reading which are now appearing without seeing evidence of a change in our concepts of "reading problem" or "disability." We no longer think merely of

the complete failure or the child who experiences great difficulty in learning to read easy primer material as the only reading defects. Studies by Gray, Lee, Durrell, Duffy, and others show that among children who have learned to read elementary grade materials there may be many who are seriously handicapped in their ordinary school work because of deficiencies in one or more phases of reading. In some cases these deficiencies are highly specialized in type and do not appear in all forms of reading activities. Among the most important of recent discoveries is that there are certain critical levels of reading ability of one or more types needed to enable a pupil successfully to invest his other intellectual talents in school work. Dr. Lee's discovery that any pupil in grades three to six who falls below a reading grade level of about 4.3 on any one of representative reading tests is practically certain to have a low accomplishment quotient in other school subjects has been confirmed directly and indirectly by a number of other studies. Failure to leap this hurdle in the intermediate grades may have consequences almost as serious as failure to learn to read in a conventional school in the first or second grade.

Viewpoints Concerning Remedial Instruction

Just as there has in some quarters been a tendency to look for the cause of reading defects in a single source, so there has been a tendency to look for the prescription for reading defects in some single formal scheme of instruction. For example, persons have proposed definite, and usually rather narrow formulas of material and procedure as the cure-all for all non-readers. They present evidence pointing to remarkable success of their prescription when used in individual instruction. It is interesting to note that some of these definite and formal programs differ radically from each other. Thus, one procedure depends in the initial stages largely upon writing or tracing of the words as wholes, and introduces absolutely no phonetic devices for working out the recognition and pronunciation of words. Another plan, apparently equally successful in general, is based primarily upon an analytical phonetic procedure, the very element entirely omitted from the first. Many of the recent investigations point to the fallacy involved in this viewpoint.

In the first place, this viewpoint assumes that, for example, all non-readers are essentially one and the same. Data from all quarters point to the fact that non-readers are very different in constitutional factors, in their reading habits, in their emotional attitudes, in their background, and in their many special aptitudes. Another fallacy underlying some of the proposals of definite remedial prescriptions is the notion that inasmuch as children have failed to learn to read by so-called "regular methods of instruction" remedial instruction calls for something very different from the materials and methods employed in the best initial instruction. The fallacy here lies in the fact that regular methods of instruction differ very much from each other, and especially in the fact that instruction in large classes is often very incomplete and ineffective. That is to say, in many cases it has really never been functionally applied. The final fallacy in the notion of a general prescription for all serious reading ills lies in a disposition of persons to think that a form of instruction is justified merely because it succeeds in enabling children who have failed under ordinary class conditions, to learn to read. The fallacy here is grounded in the fact that remedial instruction always includes many factors that are

(Continued on page 105)

Tests and Corrective Procedures for Reading Disabilities*

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TWO DISTINCT problems are indicated in the title of this paper. Tests for the analysis of reading disabilities are designed for the observation of faulty habits, confusions, and inadequacies in the various skills underlying reading. The appraisal of corrective procedures, however, requires highly sensitive inventory tests which parallel the skills taught, so that the efficiency of the instruction may be evaluated after very short periods of teaching. These problems will be dealt with separately.

I

A careful reading of the *Third Annual Research Bulletin* and experimentation with the available diagnostic tests reveal that we have taken some steps toward providing helpful analytic techniques but that there is still much to be done.

If we are to avoid the charge of treating symptoms rather than basic causes, we must not fail to study the physiological equipment of the child. Sensory difficulties have been brought to the front by several excellent studies reported in *The Bulletin.* The improvement of the school examination of eyes and ears will be counted as one of the major contributions toward preventing and correcting reading difficulties. Further studies of physiological handicaps to learning are needed, such as the effect of residuals from children's diseases, neurological irregularities, and internal conditions which affect attention or lead to quick fatigue. While these are primarily in the medical field, the initiative for the studies and possibly much of the interpretation of findings must come from educators.

Studies of reading readiness may get at some of the underlying causes of the onset of reading difficulty. We need further evidence of the maturities and skills necessary for success in reading. While we may eventually have physiological measures of the quality of the child's nervous system, we are at present limited to the measuring of intelligence through performance. Evidence is presented in *The Bulletin* of the inadequacy of the present intelligence tests in regard to the measurement of children with language difficulty. Many of these tests serve to conceal rather than to reveal the presence of a learning difficulty. Improved intelligence tests will probably be an outcome of further studies in this field.

There are several types of psychological studies of perceptual and associational functions, such as auditory and visual memory spans, that were included in all of the earlier examinations of reading difficulty. These tests led to confusion rather than to clarity and have generally been discarded. Even the much-heralded problem of "reversals" has been effectively laid to rest and relegated to its proper place as a minor phase of inadequate word perception by several studies in *The Bulletin.*

Emotional conflicts and poor home conditions have often been blamed for read-

* Delivered before the meeting of The National Conference on Research in Elementary School English, in Atlantic City, February 26, 1935.

ing difficulty. This field has not been particularly fruitful. The study of Ladd concludes that, "No marked relationships were found between reading ability and gross scores on socio-economic status of the home, play interests, and general personality adjustments." The confidence which a child gains as he progresses through a well planned remedial reading program has an alleviating effect on emotional difficulties, if such are present. We need not delay our remedial program while awaiting the development of techniques in the analysis and correction of emotions or in the gentle art of remodeling parents.

II

The concern of educational analysis of reading disabilities is that of discovering faulty habits, confusions, and inadequacies in the learning process. Since the mental background of each child is unique, there are wide differences in the clarity, permanence, and types of learning among the children in a class when a lesson is presented. Difficulties and confusions arise even in the finest sort of teaching. The study of these difficulties is the particular field of the educator.

It is evident from *The Bulletin* that while there are a large number of studies which deal with certain elements of educational analysis, there is no unified procedure which includes all the features necessary for a complete practical analysis. Most of the tests and investigations deal with a single phase of reading activity. Test manuals and equipment from at least a dozen sources contribute different parts of a complete study of reading difficulty. Reading is such a highly complex combination of skills that there is not yet available a plan for differential analysis of the inventory type which we find in arithmetic.

It is the purpose of this paper to suggest a unified procedure for the analysis of reading disabilities. The procedure is an outgrowth of several years of work in the attempt to clarify methods of analysis of reading difficulties so that teachers may be trained in the procedures. Several general principles are involved in the building of the materials:

1. The value of a test for the analysis of reading disability is determined by the amount it aids in directing more specific and efficient remedial instruction. The test should indicate the exact points for remedial attack and should suggest the general method of correction of each weakness.
2. For economy of time, all factors that may be put on a group test basis should be so tested. The individual test should include only those tests which require oral responses or which demand observation of the individual child at work.
3. The equipment for testing should be inexpensive and simple enough to be used by a trained teacher after a short period of instruction.

The educational analysis of reading difficulty should include observations of the following factors: background skills, word analysis skills, word recognition skills, oral reading, silent reading, different levels of recall, study skills, and general reading habits.

Certain of the background skills may be approached through the group test technique. Language comprehension, apart from reading, may be divided into vocabulary difficulties and sentence complexity difficulties. The first may be measured by a picture vocabulary test and the second by responses to sentences which vary in complexity and length but which have a light vocabulary burden. The test is presented orally. These tests should enable us to compare the child's language comprehension apart from reading with his skill in the mechanics of reading, enabling us to estimate the amount of me-

chanical retardation present. Another background skill which may be satisfactorily tested through group tests is that of completeness of visual perception of words. Inadequate attention to the visual pattern of the word is probably the most common cause of reading difficulty. This may be tested by showing large flash cards containing new words, turning the card down, and asking the child to identify the word from a multiple choice test containing words very similar to the stimulus word. By a judicious selection of words in the multiple choice tests, it may be discovered whether there is a chronic inattention to certain parts of the word. Certain motor skills may be tested by group tests. Individual testing is required for facility and clarity in speech. Auditory attention to word elements usually requires individual testing, although there are some promising leads for putting it on a group test basis also.

The child must have some method of attack on unfamiliar words. The study of this skill requires individual testing and observation of errors. Items in this field that seem worthy of attention are: names of letters, sounds of letters, recognition of blends and common phonograms or syllables, sounding by too small elements, inability to synthesize sounds, looking away from word after sounding, ignoring meaningless pronunciations, guessing at the word from sounding, from word form, or from context, poor enunciation when prompted, unwillingness to attempt difficult words, and poor recall of words taught. The presence of systematic errors may be determined by the analysis of a large number of errors in oral reading after the method of Marion Monroe. The ability to visualize words heard may be measured through group testing by presenting orally new words which contain phonic elements which the child should know, and testing his ability to recognize them in a multiple choice situation in which common errors in auditory analysis appear as possible choices.

Immediate recognition of words without analysis is necessary if the child is to do rapid phrase reading, taking in several words with each eye movement. This, again, demands an oral response and is therefore tested in the individual test battery. By placing the words from a pronunciation test in a tachistoscope and exposing each for a fraction of a second, it can be determined whether a child can recognize words immediately without analysis. Many children do well on this test but poorly on analysis, while others are able to analyze well but are quite unable to recognize words instantaneously. Suitable remedial techniques are provided for each type of difficulty. Phrase recognition may also be tested by tachistoscopic methods.

The method of analysis of difficulties in oral reading is primarily that of systematic observation of errors and faulty habits in a controlled situation. These observations should be made on the child's performance in easy, average, and difficult material. It should be noted and recorded by vertical pencil marks between phrases whether the child does inadequate or incorrect phrasing or reads in a word-by-word manner. This is further checked by observation of eye movements and by an eye-voice span test. The reliability of this method of observing phrase reading is rather low, but the method is adequate to detect those children who have marked difficulty. Voice, enunciation, and expression are observed to note strained high pitched voice, monotonous tone, too soft or too loud volume, poor enunciation of difficult words or throughout all reading, and evidence of systematic difficulties. It is observed also whether the child habitually ignores punctuation, repeats words or phrases, adds words, omits words, makes many errors on simple words, or shows a general insecurity in oral reading.

Observation of the individual child as he reads silently material of a mechanical difficulty equal to that which he read orally and of approximately equal intellectual difficulty makes possible a comparison between oral and silent reading habits. It is observed whether the child has a low rate of silent reading or a high rate at the expense of mastery. It is also observed whether the child moves his lips, whispers, makes too many eye movements per line, or ignores difficult words. Silent "word saying" may often be detected even though throat or lip movements are not present by a comparison of oral and silent reading rate, by observation of eye movements, or from the child's introspective comments. Chronic inattention to content necessitating rereading to get the thought is sometimes present.

Several levels and types of recall should be checked. The low level of identification of answers found in most group tests of reading is often quite inadequate for classroom use. Direct answers to fact questions is a slightly higher level. Unaided oral or written reproduction is a higher level still. These two latter types may be scored in a manner much the same as in the "reading and report" of the ten-year level in the Stanford-Binet. It should be observed whether the recall is scanty and poorly organized, whether there are inaccurate memories and additions, whether the response is labored and slow, whether the child avoids the use of new words in recall, and whether omissions may be prompted through questions. Furthermore, recall should be checked in material of easy, average, and difficult mechanical structure. It should be observed also whether spelling and handwriting impede the fluency of written recall.

Habits common to both oral and silent reading are worth noting. Such habits are: head movements, poor posture, signs of tenseness, losing place, holding book too close or incorrectly, use of finger or pointer, and lack of persistence and aggressiveness in attack.

Study skills which deal with thinking or organization of ideas based on reading have been satisfactorily measured by several group tests. These tests are primarily for middle and upper grade reading. Many of these appear to be useful in planning a remedial program: location of information, selecting relevant material, reading for specific details, association of ideas with other knowledge, and the use of index and table of contents. There are so many types of such skills listed by several authors that it is difficult to determine which are the most valuable for classroom use.

Such an elaborate array of items seems very confusing. Many of them may be shown later to be unnecessary or so closely related to other skills that it is needless to observe them separately. All of these items, with the exception of study skills, may be observed by the use of a group test requiring two sittings of thirty minutes each and an individual procedure requiring about forty minutes. A rough analysis may be made on an abridged form which would require about twenty minutes of group testing and ten minutes of oral testing.

The heart of such a procedure for the analysis of reading difficulty is a simple summary sheet in which each item checked may be recorded as of major or minor importance, and in which each item is followed by a page reference to a remedial manual which indicates sample techniques by which the difficulty may be overcome.

It should be noted that the procedure outlined above requires that the child have some experience with reading. Only a few of the tests are adaptable to the child who cannot read at all. Such children require more elaborate testing in the fields of reading background and reading readiness.

It should be stated again that this pro-

cedure for the analysis of reading difficulty deals primarily with remediable faults in the learning process. It assumes that the child has adequate intelligence and a clean bill of health in regard to sensory, motor, and other physiological and neurological conditions. This should be established as a fact through the examinations provided by the fine researches indicated in *The Bulletin* and by further techniques as they appear from psychological or medical sources. The recent studies reported by Gates indicate that the greatest number of reading disabilities by far are those which may be corrected by educational methods.

III

Satisfactory tests for the appraisal of corrective procedures are non-existent. Our present achievement tests cover such a wide range of grades that they are insensitive to small units of progress. Another factor contributing to insensitivity is the fact that such tests do not parallel the classroom instruction closely enough. Many of the words and skills included in the teaching may not appear at all in the test, or in case they appear, they are complicated by the presence of many other factors.

Efficiency in teaching requires that the merits of a method be established as quickly as possible. If a method is failing, we should not build confusions for a semester before we are able to determine that fact. Especially in the primary grades, the skills to be acquired in a single semester are so many that every single day must count if they are to be mastered. If sixty important words are taught and a child fails to recognize forty of them, we ought not to wait until the end of the year to make some adjustment in the instruction of the child. If an inventory paragraph is built to include the useful words to be retained after forty or fifty new words are presented, and the achievement of each child is checked by an oral reading of this paragraph, failures in learning may be detected and adjustments made immediately. The efficiency of these adjustments may be determined by other inventory tests on later words. In a similar manner, we need to know the effectiveness of each item which contributes to the attainment of our reading objectives. Even the efficiency of an enrichment program for making words and topics more meaningful to the child may be evaluated by tests of the inventory type. It is desirable that many forms of check tests of this type accompany each basal reading series.

Such inventory tests will serve as preventive measures, in that we shall be able to observe the onset of difficulty at any phase of the learning process. Not a great deal can be accomplished through diagnostic tests and outlines for remedial work until finer tools come to the hands of the teacher from publishers. The large numbers of children who need help in certain phases of reading makes it mandatory for most of the problems to be cared for in the regular classrooms. Clinical studies and individual tutoring can make only a small dent in the service needed. The teacher must be given better tools so that she can use small group work, pupil teachers, and individualized self-administering exercises and other methods of adjustment to differences in learning rates and pupil needs. Clinics will probably become centers for the study of extremely difficult cases, for the training of teachers, for research, and for developing new materials.

Remedial reading is only a temporary phase in this larger problem of providing for individual differences in learning. In the future, we may become wise enough to teach every child correctly on his first approach to reading.

Problems of Reading Disabilities Requiring Scientific Study*

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ANYONE who reads carefully the *Third Annual Research Bulletin* cannot fail to be impressed with the fact that tremendous progress has been made in the scientific study of reading disabilities. The results of these investigations not only supply significant information concerning their causes and remedies but also striking evidence that all pupils do not use the same methods in learning to read and do not follow the same route to maturity in reading. Such findings suggest that various procedures rather than a uniform method should be employed regularly in teaching pupils to read. If such a plan were adopted widely, I am firmly convinced that the number of so-called remedial cases could be greatly reduced.

Gratifying as are the results achieved thus far, we are still at the pioneer stage in the study of reading disability. The problems presented by a large majority of the very poor readers in typical classrooms are still very perplexing. They should be attacked vigorously and systematically by various groups of research workers. One of the encouraging signs of the times is that investigators are pursuing given types of cases until the problems which they present are reasonably well understood. As investigation continues, we should discover gradually the types of cases which can be prevented or readily corrected through the use in the classroom of appropriate types of guidance and those which can be treated best on a clinical basis. In the discussion that follows, an effort will be made to identify certain problems relating to the more severe types of reading disability which merit intensive study.

One of the chief causes of difficulty in learning to read is mental deficiency or retardation. In fact, among unselected children it is the most frequent cause. A practical problem concerning such pupils relates to the intelligence level below which it is futile to attempt to teach reading. A decade ago, the recommendation was often made that pupils whose I.Q.'s fall below 70 should be eliminated from reading classes. Studies made more recently show that many pupils with I.Q.'s lower than 70 can learn to read reasonably well, if appropriate methods are employed. It is also clear that mental age, as well as "brightness" should be considered. The problem is further complicated by the fact that mentally retarded pupils often fail in reading for causes other than low mentality. It follows that the various factors that may contribute to difficulty in learning to read must be identified in efforts to determine the probable success or failure of pupils, who rank low in intelligence. Much research is needed before adequate information is available for such purposes.

Closely associated with the foregoing issue is another of large significance. In the past we have assumed that everyone should learn to engage in continuous meaningful reading for information and pleasure. In working with adult illiterates,

* Delivered before the meeting of The National Conference on Research in Elementary School English, in Atlantic City, February 26, 1935.

I have been impressed with the importance of identifying specific levels or types of reading in which individuals of varying capacity may engage successfully. The simplest type is often called sign reading and is essential for safety and convenience. The second type involves the reading of words and phrases in more or less discontinuous fashion, such as the address of a letter, the amount and signature on a check, head-lines in newspapers, key statements in weather reports, and words and phrases in advertisements. At a distinctly higher level is continuous, meaning reading, in which more or less interpretation is desirable. Assuming for the moment that society should provide each child and adult with the various opportunities from which he can profit most, it follows that we should define more accurately than in the past desirable types or levels of reading which can be expected of individuals of known characteristics. Diagnosis and remediation in the case of the mentally retarded is valid only in the light of such information and standards.

Even more fundamental is the need today of studies to determine those components of intelligence which are most essential in learning to read. In most of the studies made thus far, we have used composite measures of mental ability. Experience shows clearly that pupils of given mental ages and intelligence quotients often differ widely in their ability to learn to read. Those who have been interested recently in factor analysis as it relates to intelligence believe that measures will soon be available which will reveal for given individuals the relative strength of the various elements that comprise general intelligence. As soon as such tests can be used, studies should be made to determine the relative importance of different aspects of mental ability in learning to read. In the light of the results of such studies, diagnosis should proceed with far greater accuracy than in the past and remedial work with far greater wisdom and confidence.

The relation of defective vision to reading is too well known to require emphasis here. In the past, field studies of pupils with defective vision and poor visual habits have been practically impossible. Such is not the case today. Various instruments of investigation are now available. Reference is made first to the battery of visual tests, developed by Dr. Emmett A. Betts, which is administered through the use of the telebinoculars distributed by the Keystone View Company. It includes separate measures of vision, such as superimposition (fusion of two images into one), visual acuity (keenness of vision), eye-muscle imbalance (horizontal and vertical), stereopsis (depth perception), hyperopia (far-sightedness), myopia (near-sightedness), astigmatism, and eye regression. It is assumed that when evidence of defects is discovered, the pupil will be sent to an eye specialist for a more thorough diagnosis. The use of these tests among young children has revealed the fact that distinct changes occur in the eyes during the kindergarten and early grades. Additional studies are needed to determine the level of visual maturity essential for satisfactory progress in learning to read. Furthermore, we need to know more accurately than at present the effect of different types of visual deficiency and immaturity upon reading. Even well-trained oculists differ radically today concerning these issues.

Studies of the visual habits of readers may also be made in classrooms through the use of the oculo-photometer, a portable apparatus for securing photographs of eye-movements while reading. Detailed information concerning it can be secured from the Educational Laboratories, Inc., Brownwood, Texas. The records secured supply not only information concerning

the adequacy of certain basic habits, such as rate and span of recognition and the number of regressive movements, but also facts concerning the performance of each eye in reading. Recent studies show clearly that one eye often functions much better than the other. For example, in a case described to me by Dr. Louise Farwell, National College of Education, Evanston, Illinois, the left eye read 16 per cent more content in a given time than the right, and 9.3 per cent more than both eyes; the left eye read with 27.7 per cent fewer errors than the right eye, and 42.2 fewer errors than both eyes. Apparently the two eyes had not learned to function together to maximum advantage. In some of the studies reported, the leading or preferred eye was less dextrous than the other. Much progress had been made in developing methods of overcoming such difficulties. Further investigations are essential in order to understand more fully their nature and incidence, and the methods by which efficient habits can be established.

Time will permit reference to only one other problem in the visual field. As pointed out by Dr. Marion Monroe in the Thirty-Fourth Yearbook of the National Society for the Study of Education, reversals in reading have often been attributed to "difficulty in developing right-ward eye-movements on the part of some left-eyed children. . . . Left-eye preference may pre-dispose some children toward left-ward movements and act as an interference in establishing right-ward movements." Such an explanation sounds plausible. We need, however, to understand more clearly than at present the causes and methods of correcting errors in the direction of eye-movements in reading. Undoubtedly many causal factors are involved. As an aid in correcting certain types of poor muscular control of eye-movements, J. Y. and E. A. Taylor of Brownwood, Texas, have recently developed what is called a synchroptiscope. By controlling both the order and rate of exposures, they hope to promote the development of right motor habits. Preliminary reports of the use of this instrument among both individuals and groups indicate that it has large corrective possibilities. Studies are needed not only to determine the various uses which can be made of the synchroptiscope but also to determine other practical methods of overcoming the types of poor visual habits to which reference has been made.

Many other problems in the visual field merit deliberate investigation. Similarly, auditory deficiencies, as they affect reading, should be studied thoroughly and with great care. On account of the limitations of time, however, I shall refer next to certain severe reading deficiencies which remain after general mental deficiency and visual and auditory defects have been eliminated as causal factors. The first is often called "acquired word blindness," a term which, according to Dr. Miles Tinker, is often used by ophthalmologists "to designate a condition in which an individual with normal vision and therefore with ability to see the letter and words distinctly is no longer able to interpret written or printed language because of a lesion in part of the visual center of the brain. All the visual memory of words and letters have been swept away. Re-education of such cases is a slow and laborious task, and with elderly people nearly impossible."

About two years ago, a very interesting case of this type came to my attention. He was a boy about sixteen years of age who was greatly interested in motorcycles. During leisure hours, he reconditioned cycles with parts secured from second-hand machines. While trying out such a motorcycle one day, he ran head first into a telephone pole with the result that he was unconscious for several days.

While convalescing, he discovered that he was unable to read. In the course of time, he was brought to the Orthogenic School of the University of Chicago for diagnosis and remedial treatment. During the course of the preliminary examination, I asked him to write his name and any other information which he wished to record. He immediately took a pencil and proceeded to write. The only difficulty encountered related to the spelling of certain words, such as "tomorrow" and "live." When he came to these words, he was obviously confused and asked how to spell them. After looking over his report, I asked him to read it, which he did with reasonable ease. Further examination showed that he was quite unable to read anything which he had not written himself.

The examination showed that his writing coordinations were far less disintegrated than his reading associations. Contrary to expectation, he was able to read or write numbers and was able to spell reasonably well. Here, then, was a case in which injury affected only the reading associations. His re-education began at the simplest level of reading. Inasmuch as he could write and spell, large use was made of these abilities in re-learning to read. After six months of vigorous effort, he attained the fifth-grade norm. Emotional difficulties arose at that time which interfered with rapid progress. In the course of a few weeks, however, he again directed his attention to reading and succeeded in increasing his achievement to about the seventh-grade level. The recovery in this case was much more rapid than usual, due to the fact that the writing and spelling associations had not been seriously disturbed. Reports of the studies of many such cases are essential in order that their nature and variety may be better understood and in order that principles underlying their treatment may be developed.

A related type of reading disability is often called "congenital word blindness." As the term is commonly used, it applies to "persons who have normal vision, audition, and intelligence, but who show extreme difficulty in learning to recognize printed and written language." They exhibit symptoms similar to those caused by known brain lesions in cases of acquired word blindness. Because there is no evidence of acquired disability, Hinshelwood and certain English ophthalmologists have used the term "congenital" word blindness. However, many of the French neurologists have used the term "word blindness" only in referring to the acquired condition. As pointed out by Tinker, the tendency has developed recently among psychologists to use not only the term "congenital word blindness," but also "developmental alexia," "congenital aphasia," "dyslexia," "congenital alexia," "strephosymbolia," and "inability to learn to read" in designating non-readers. The use of so many terms to designate the same general area of deficiency is clear evidence of the need of further intensive studies.

Two radically different views are held concerning the causes of congenital word blindness. Hinshelwood and other medical writers have attributed this type of inability "to a congenital defect caused by a pathological condition or by a lack of development of specific areas of the brain tissue." This explanation has been rejected by neurologists and by such psychologists as Burt, Gates, and Orton. There is general agreement, however, that certain children encounter unusual difficulties in learning to read which are not overcome by the methods commonly employed in teaching. We need at present a broad program of investigation which will identify, if possible, significantly different types of non-readers, the basic causes and manifestations in each case, and appropriate remedial measures.

Severe types of reading disability are often associated by many investigators with certain physiological factors, manifested in specific types of behavior, such as mirror writing, left-handedness, ambidexterity, mirror reading, left-eyedness, etc. The literature relating to such cases is full of vigorous controversies concerning the relation of cerebral dominance to reading disability, the relation of handedness and eyedness to reading disability, and the causes of reversals. Some progress has been made during the last three years in clarifying the issues involved. The need is urgent, however, for additional laboratory studies of poor readers to determine the relationship, if any, between certain physiological tendencies and reading disabilities. Valuable as such studies may be, they must be supplemented by many others which seek to determine the best procedure to adopt in improving the habits of poor readers who exhibit various physiological tendencies.

A further cause of marked deficiency in reading is emotional instability. Many of the cases which have come under my personal direction made poor progress in reading largely because of nervousness, self-consciousness, and timidity. Dr. Gates reported that about two per cent of the reading deficiencies in one of his groups of subjects were due primarily to constitutional, nervous, and emotional disorders. As pointed out by Hollingworth, learning to read requires cooperation, sustained effort, and fidelity to facts. It follows that pupils exhibiting impulsive responses, negativistic attitudes, and illusions often encounter serious difficulty in learning to read or in overcoming reading deficiencies. It is relatively easy to identify the grosser forms of emotional instability, but very difficult to detect the presence of others, such as those which are consciously suppressed by many timid pupils. It also requires a high degree of tact and insight to secure the wholehearted cooperation of such cases. Such statements indicate that there is urgent need of systematic studies of the nature of the emotional disturbances that affect progress in learning to read and of the methods which can be adopted in overcoming the difficulties which they impose upon the learner.

The research problems which have been presented thus far include only a small proportion of those which await solution. It will be impossible to present others on this occasion. In conclusion, I wish to emphasize again a very strong conviction. Instead of distributing effort over all types of cases, as is very frequently done, I believe that far greater progress can be made in the immediate future if groups of investigators will concentrate upon the study of specific types of deficiencies until the major issues relating to them have been reasonably well solved. The work of Dr. Betts in the field of visual difficulties and the studies by Dr. Gates and Dr. Bennett concerning reversal tendencies in reading supply excellent samples of the type of concentrated effort needed in studying various types of reading disability.

Favorite Children's Books of the Past Decade

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WHAT books written during the past decade have securely established themselves as prime favorites with the children?

It is strange that this should be a difficult question for a children's librarian to answer, but so it is, probably due to the many elements which enter into the formation of a child's request for a certain book, other than his own personal desire for it. Any general conclusions that a librarian may draw may easily be unsound.

We feel sure that the older favorites such as *Heidi, Tom Sawyer, Little Women, Pinocchio,* are thoroughly established and are asked for spontaneously by the children, almost uninfluenced by adult pressure; but this is the result of years of reading interest having been centered upon them. Perhaps many of the permanently worthwhile books of more recent years need a longer perspective before we can truthfully declare their true places in the affections of children.

Adult influence enters very considerably into the reading demands of boys and girls today. Teachers send the pupils to the libraries for books connected with their English work, for project material, for collateral reading that will vitalize and make real the history and geography subjects. Parents choose books for their children from selected lists, after consultation and thoughtful consideration as to what is important for them to have and children's librarians all over the country are working individually and collectively with their young public trying to direct reading habits and to open new fields of interest to the child.

As a result of all this, the permanently worthwhile junior books are replaced and duplicated almost as heavily as the more popular and ephemeral books in a children's collection, and circulation figures show a good use of them. In spite of this, one would hesitate to say that the outstanding books of the past decade are yet established as prime favorites, though they are read and thoroughly enjoyed by a large number of children. It may take a few more years before a child asks as naturally for *Waterless Mountain,* or *Hitty,* as for *Tom Sawyer* or *Little Women;* but this is not discouraging, for standards are being built and tastes formed which will tell in time.

Therefore, it seems that the important thing to emphasize in this discussion is not the books which are now prime favorites, but rather those books of the past ten years which are worthy of being the favorites of the future, for the average child who follows his own volition is still asking for the good school and mystery story and seems to like best certain books, which, though wholesome enough of their kind, are hardly worth noting in this paper.

While studying the library staff-meeting booklists and other available lists of books published since 1925, it was a revelation to discover definite new trends in the production of books for children. The first two years of the decade produced very few permanent titles, though the much loved *Poppy Seed Cakes* and

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When We Were Very Young came out in the fall of '24. It was not until the middle of 1926 that the publication of junior books seemed to take on new life, and there burst into print the worthwhile beginnings of a long succession of good books which followed through the years. The peak years of prosperity in the country seemed to give a new impetus to the writing and printing of books original in content, distinguished in style, beautiful in format, and varied in subject matter.

Undoubtedly, the observance of National Book Week, with its growing publicity and the resultant efforts of publishers and booksellers to encourage year-round selling of children's books, and the awarding of the John Newbery medal each year for the most distinguished contribution to children's literature, had noticeable influence upon the output of a finer type of book.

Much as we would like to believe to the contrary, the books selected for the Newbery awards have not proved to be prime favorites as yet. Perhaps a little longer time must elapse before the children really make them their own, and the efforts of teachers and librarians be rewarded. We know that these books are well liked when they are read, but their style seems to be a little difficult for the child of average mentality, so that adult influence is needed to help in the discovery of them.

The Newbery prize books were published as follows: *The Story of Mankind* —Hendrik Van Loon, 1922; *The Voyages of Doctor Dolittle*—Hugh Lofting, 1923; *The Dark Frigate*—Charles Boardman Hawes, 1924; *Tales from Silver Lands*—Charles Finger, 1925; *Shen of the Sea*—Arthur Chrisman, 1926; *Smoky* —Will James, 1927; *Gay-Neck*—Dhan Gopal Mukerji, 1928; *The Trumpeter of Krakow*—Eric Kelly, 1929; *Hitty*—Rachel Field, 1930; *The Cat Who Went to Heaven*—Elizabeth Coatsworth, 1931; *Waterless Mountain* — Laura Armer, 1932; *Young Fu*—Elizabeth Lewis, 1933; *Invincible Louisa*—Cornelia Meigs, 1934.

One of the most noticeable trends in book production during the last decade was the increasingly large number of books which appeared in translation from other countries, or were written about foreign lands by writers who had lived in them. The life, customs, and history depicted are made so real in these books that the children who read them must unconsciously become world minded, and this is important. Particularly rich in local color and story interest of a distinctly foreign flavor are the following: *Roses of the Wind,* by Sonia Lustig (Russia); *Children of the Moor,* by Fru Fitinghoff (Sweden); *The Herdboy of Hungary,* by Alexander Finta; *The Norwegian Farm,* and *The Norwegian Family,* by Mrs. Knut Hamsun; *The Treasure of Carcassonne,* by Albert Robida (France); *The Trumpeter of Krakow,* by Eric Kelly (Poland); *The Children of the Mountain Eagle,* and *Pran of Albania,* by Elizabeth Miller. Besides these and many more, are the lovely foreign picture books and stories for little children which have come in such numbers during this time.

Among these books have appeared at least a dozen interesting ones dealing with different periods of Russia's evolution from a barbaric past, in *Yermak the Conqueror,* by Peter Krasnov, to the Communist present, in *Peter, Katrinka's Brother,* by Helen Haskell. These books are particularly timely in giving an understanding of the great Russian puzzle to the boys and girls who will be the men and women of the near future. One of these, *Vanya of the Streets,* by Ruth Kennell, is so realistic in the way in which it pictures the life of the lawless bands of homeless children orphaned by the war, that many adults feel that it may have a demoralizing effect on our own children. On the contrary, if this book is used intelligently with the older boys and girls, it can make them aware of the hide-

ousness of war and the terrible chaos which follows in the lives of non-combatants. This is in line with a plea which Mr. Overstreet made at a Forum meeting when speaking in Toledo, that children be made conscious of the inhumanities of life in order to develop sympathy and an understanding of our great social evils, and be prepared for enlightened leadership in maturity. This cannot happen if they are always to be protected from the realities of life. Just as the world needed the novels of Charles Dickens to open its eyes to the great wrongs endured by the underprivileged children of England in his day, so do the boys and girls of our day need such books as *Good Luck, Lieutenant!,* by Russell Carter, *The Here-to-Yonder Girl,* by Esther Hall, and *The Railroad to Freedom,* by Hildegarde Swift, to help them to realize the social wrongs that mankind has so stupidly allowed to exist in a so-called civilized world.

Another outstanding trend of the decade was the increased production of readable books dealing with all phases of American history. In them, the past comes alive for both girls and boys, whereas the historical fiction of the previous decades seemed created mostly for boys. For years, Henty, Tomlinson, Stoddard, and Altsheler sent their boy heroes off to the wars, or to fight Indians, with little thought for the girls. Then came Emilie and Alden Knipe, and Alice Turner Curtis who started to popularize America's past for girl readers. They bridged the gap between the older treatment of history for children, and the new in which historical accuracy is linked with dramatic story telling. The work of Cornelia Meigs, Constance Skinner, Elsie Singmaster, Alida Malkus, Ada Darby, Rachel Field, Gertrude Crownfield, Katherine Grey, and others is based on careful research and sound knowledge of the period dealt with, and is a proud contribution of the past ten years. Is it not strange that most of the writers who are now making America's past vivid for girls particularly, and boys, are women? Though the work of Charles Hawes and Clifford Sublette must not be overlooked. The libraries have filled their shelves with these books and are happy to have them, but the unconscious criticism of one of our girl borrowers is possibly justified. She asked in a pathetic voice, "Aren't you ever going to get any more new books just about a plain little American girl like me, living today?"

Just as interesting are the historical stories of other parts of the world which are now being brought out so successfully by such writers as Eric Kelly, Agnes Hewes, Mrs. Caroline Snedeker, May McNeer, Jeanette Eaton, and others. It is good to have authenticity the basis for this type of writing today. Dovetailing into this group are readable biographies of people both at home and abroad, that are coming along in ever increasing numbers. Two recent ones of particular interest are: *The Snowbaby's Own Story,* by Marie Peary and *Little Era in Old Russia,* by Irina Skariatina.

Indeed, there seems to be no end to the ever widening range of interesting subject matter which is being successfully woven into books for children. The field of literature is not being neglected either, for there have been lovely editions of the old epic hero tales, the most needed of which were *The Sons of the Volsungs,* by Dorothy Hosford, *The Story of Beowulf,* by Strafford Riggs, and *The Tale of the Warrior Lord,* by Merriam Sherwood. And as for poetry, the work of A. A. Milne, Rachel Field, Eleanor Farjeon, and Dorothy Aldis appeared during this period as well as excellent selections of poetry suitable for children from such well-known poets as Vachel Lindsay, Edna St. Vincent Millay, Carl Sandburg, Langston Hughes, Elizabeth Madox Roberts, Emily Dickenson, and others; and many excellent anthologies.

One could go on indefinitely talking about the new trends conspicuous in children's books since 1925, which enrich the fields of science, nature study, the fine and useful arts, travel and folk lore. In conclusion, attention should be called to one other class of books that has been richly developed during the last few years—books for the youngest readers. Not so very long ago there seemed little to purchase except the reader type of book, other than the older picture books. Then there suddenly began to appear a wide range of lovely books, showing beautiful color work, an intelligent understanding of child interests, and varied subject matter. Some of these were importations, but many have been made in America, and the names of Maud and Miska Petersham, Elmer and Berta Hader, Marjorie Flack, Emma Brock, Kurt Wiese, Wanda Gág, Ingri and Edgar d'Aulaire, and others, appear again and again in books which delight the little child as well as the adult. The lovely photographic studies of child life made into picture books for younger children by such photography enthusiasts as Lena Towsley and Mrs. Mary S. Martin, are a valuable new contribution.

This cursory survey of children's books published between the years 1925 and 1935 will show that there are encouraging evidences of intelligent consideration of children's needs on the part of writers and publishers; and that there is a wealth of material for curriculum enrichment as well as recreational reading for the junior readers. It is to be regretted that, because of limited space, mention can not be made of many equally worthy writers for children and their works.

BOOKS REFERRED TO BY TITLE

Armer, Laura A. *Waterless Mountain.* Illus. by Sidney Armer and Laura A. Armer. Longmans, $2.50.

Aulaire, Ingri and Edgar d'. *Ola and Blakken.* Doubleday. $1.75.

Carter, Russell G. *Good Luck, Lieutenant!* Little Brown. $2.00.

Clark, Marjory, pseud. *Poppy Seed Cakes.* Illus. by Maud and Miska Petersham. Doubleday. $2.00.

Coatsworth, Elizabeth J. *Cat Who Went to Heaven.* Illus. by Lynd Ward. Macmillan. $2.00.

Field, Rachel L. *Hitty, Her First Hundred Years.* Illus. by Dorothy P. Lathrop. Macmillan. $2.50.

Finta, Alexander and Eaton, Jeannette. *Herdboy of Hungary.* Illus. by Alexander Finta. Harper. $2.50.

Fitinghoff, Fru Laura. *Children of the Moor.* Trans. from the Swedish by Siri Andrews. Illus. by Gustaf Tennggren. Houghton. $2.50.

Hall, Esther G. *The Here-to-Yonder Girl.* Macmillan. $2.00.

Hamsun, Marie (Mrs. Knut Hamsun). *The Norwegian Farm.* Abr. and trans. by Maida Castelhun Darnton. Lippincott. $2.00.

Hamsun, Marie. *The Norwegian Family.* Abr. and trans. by Maida Castelhun Darnton. Lippincott. $2.00.

Haskell, Helen E. *Peter, Katrinka's Brother.* Dutton. $2.00.

Hawes, Charles B. *Dark Frigate.* Atlantic. $2.00.

Hosford, Dorothy G. *Sons of the Volsungs.* Adapted from "Sigurd the Volsung" by William Morris. Illus. by Frank Dobias. Macmillan. $2.00.

James, Will. *Smoky, the Cowhorse.* Scribner. $2.00.

Kelly, Eric P. *Trumpeter of Krakow.* Macmillan. $2.50.

Kennell, Ruth. *Vanya of the Streets.* Harper. $2.00.

Krasnov, Peter N. *Yermak the Conqueror.* Duffield. $2.00.

Lewis, Elizabeth F. *Young Fu of the Upper Yangtze.* Illus. by Kurt Wiese. Winston. $2.50.

Lofting, Hugh. *Voyages of Doctor Dolittle.* Stokes. $2.50.

Lustig, Sonia. *Roses of the Wind.* Doubleday. $1.00.

Meigs, Cornelia. *Invincible Louisa.* Little Brown. $2.00.

Miller, Elizabeth C. *Children of the Mountain Eagle.* Doubleday. $2.00.

Miller, Elizabeth C. *Pran of Albania.* Doubleday. $2.00.

Milne, A. A. *When We Were Very Young.* Dutton. $2.00.

Mukerji, Dhan Gopal. *Gay-neck.* Dutton. $2.00.

Peary, Marie Ahnighito. *The Snowbaby's Own Story.* Stokes. $2.00.

Riggs, Strafford. *The Story of Beowulf.* Illus. by Henry A. Pitz. Appleton-Century. $2.50.

Robida, Albert. *The Treasure of Carcassonne.* Longmans. $1.50.

Sherwood, Merriam, trans. *Tale of the Warrior Lord.* El Cantor de Mio Cid. Illus. by Henry A. Pitz. Longmans. $2.50.

Skariatina, Irina. *Little Era of Old Russia.* Bobbs-Merrill. $2.50.

Swift, Hildegarde H. *The Railroad to Freedom.* Harcourt. $2.50.

REPRESENTATIVE BOOKS BY AUTHORS AND ILLUSTRATORS MENTIONED

Aldis, Dorothy. *Everything and Anything.* Minton-Balch. $2.00.

Brock, Emma L. *Little Fat Gretchen.* Knopf. $1.50.

Crownfield, Gertrude. *Freedom's Daughter.* Dutton. $2.00.

Coatsworth, Elizabeth. *Away Goes Sally.* Macmillan. $2.00.

Darby, Ada. *Gay Soeurette.* Stokes. $1.75.

Dickenson, Emily. *Poems for Youth.* Ed. by A. Hampson. Little Brown. $2.00.

Eaton, Jeannette. *Young Lafayette.* Houghton. $2.50.

Farjeon, Eleanor. *Over the Garden Wall.* Stokes. $1.75.

Flack, Marjorie. *The Story about Ping.* Viking. $1.00.

Gág, Wanda. *Wanda Gag's Story Book.* Coward-McCann. $2.50.

Hader, Berta and Elmer. *Midget and Bridget.* Macmillan. $2.00.

Hewes, Agnes. *Spice and the Devil's Cave.* Knopf. $2.50.

Huffard, Grace. *My Poetry Book* (Anthology). Winston. $2.50.

Hughes, Langston. *Dream Keeper* and other poems. Knopf. $2.00.

Lindsay, Vachel. *Johnny Appleseed.* Macmillan. $1.00.

McNeer, May. *Waif Maid.* Macmillan. $2.50.

Malkus, Alida. *Dark Star of Itza.* Harcourt. $2.50.

Malkus, Alida. *The Stone Knife Boy.* Harcourt. $2.00.

Martin, Mary F. *First and Second Picture Books.* Harcourt. $2.00.

Meigs, Cornelia. *Swift Rivers.* Little Brown. $2.00.

Meigs, Cornelia. *Wind in the Chimney.* Macmillan. $2.00.

Millay, Edna St. Vincent. *Poems,* selected for Young People. Harper. $2.50.

Milne, A. A. *Winnie-the-Pooh.* Dutton. $2.00.

Petersham, Maud and Miska. *Christ Child.* Doubleday. $2.00.

Petersham, Maud and Miska. *Miki.* Doubleday. $2.00.

Roberts, Elizabeth M. *Under the Tree.* Viking. $1.50.

Sandburg, Carl. *Early Moon.* Harcourt. $2.00.

Singmaster, Elsie. *Swords of Steel.* Houghton. $2.00.

Skinner, Constance. *Becky Landers.* Macmillan. $1.50.

Snedeker, Caroline. *Forgotten Daughter.* Doubleday. $2.00.

Sublette, C. M. *The Scarlet Cockerel.* Bobbs-Merrill. $2.00.

Towsley, Lena. *Peggy and Peter.* Farrar. $2.50.

VIEWPOINTS UNDERLYING THE STUDY OF READING DISABILITIES

(Continued from page 90)

not embodied in ordinary classroom work. Remedial instruction means first of all individual instruction; it means that the teacher is giving attention to one child; that she is noting the child's responses; that she is giving him help at the moment help is needed; that she is noting his particular successes and failures, that she is demonstrating and checking up from step to step. Remedial instruction is usually definite and proceeds carefully from day to day. It is unlikely to involve gaps, since the teacher begins with the child where she left off at the preceding session. It includes, furthermore, the motivating factors which individual attention provides. Often this combination of influences is sufficient to enable a pupil to learn to read despite grave deficiencies in the general method and the organization of materials. The experiences with remedial instruction of many types, some of them in all likelihood very poor, tend to show that a large number of the failures and difficulties in learning to read are due to large classes, inadequacies of materials, and other factors in mass instruction which make it impossible for the teacher to know children individually and to give them instruction and help when and where it is needed.

Reading Disabilities and Their Correction*

A Critical Summary of Selective Research

EMMETT ALBERT BETTS
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(Continued from March)

Birdsall, Agnes, "A Study of the Mental Characteristics of Superior and Retarded Readers." Master's Thesis, School of Education, University of Michigan. Directed by Dr. Clifford Woody, 1931. Unpublished. Filed in education library.

Character of Research: An analytical appraisal of the results of a relatively large number of reading tests, English tests, methods of study test, scope of perception test, personality studies and experience tests.

Problem: To determine the significant mental habits characteristic of superior and retarded readers on the seventh grade level.

Limitations of Study: (1) All subjects were selected from the seventh grade in one school system. (2) Only the pupils ranking highest, called Group I, and the pupils ranking lowest, called Group II, on the Sangren-Woody and Gates Reading Tests, were included in the study.

Procedure: Both groups were under observation and training for two consecutive semesters of eighteen weeks each. During the first semester the training of Group I was incidental, while that of Group II consisted of daily drill. During the second semester the training of Group I remained unchanged, while that for Group II was extended to include a variety of both methods and materials in reading. Both the Sangren-Woody Reading Tests (Form B) and the Gates Silent Reading Tests were given in October. The Sangren-Woody Reading Test (Form A) was given at the end of the first semester and also the same test (Form B) was given at the end of the second semester in May. All other tests were given at various times during the year. From the data of all of these materials a comparative study was made. Three excellent case studies from each group are included.

Specific Findings: The average I.Q. of Group I was 117, while that of Group II was 100. The median chronological age of Group I was 12.3, while that of Group II was 12.9. The median grade levels on the Sangren-Woody Reading Tests were: October 8.8, January 9.7, May 10.8. Group II showed median grade levels on the same tests as follows: October 6.6, January 6.5, May 7.5. Group I showed a median grade-level of 9.9 on the Gates test, while that for Group II on the same test was 6.5. Twenty-six pupils of Group I and seventeen pupils of Group II made identical median scores of 64 on the emotional stability test. The norm for this test is 56. Both groups were about the same in total number of words in the vocabulary test of word usage and also in the experiences indicated. In the word building test, the median for Group I was 10 and the median for Group II was 4.5. Twenty-four pupils out of twenty-eight in Group I showed that they had more than one method of attacking unknown words, while none of the pupils of Group II used more than one method. The pupils of Group I exceeded the pupils of Group II in purposefulness, technique, discrimination, and association.

Blackhurst, J. Herbert, *Investigations in the Hygiene of Reading.* Doctor's Dissertation, School of Education, Northwestern University. Directed by Dr. Elmer E. Jones. Warwick and York, Baltimore.

Character of Research: A controlled experiment dealing with length of line, size of type and leading in the first four grades and in addition with the matter of margins in the first grade.

Problem: (1) What size of type is most readable in each of the first four grades for children of normal age? (2) How many millimeters of leading are most desirable in each of the first four grades for children of normal age? (3) What length of line is most desirable in each of the first four grades for children of normal age? (4) Is the irregularity of beginning and ending of lines an advantage to first grade children of normal age, i.e., should every line

* Second installment of the Third Annual Research Bulletin of the National Conference on Research in Elementary School English, appearing serially in THE REVIEW.

in a paragraph, excepting the first, which is customarily indented, and the last, which may fall short due to lack of material, begin and end so as to form a solid margin, i.e., one with no indentations, or should the right margin be solid and the left irregular, or should both margins be irregular?

Limitations of study: The amount of material used was too little to bring out the reading advantages of one specimen over another. I assume that the effect of a troublesome factor is accumulative. Rate and number of errors alone were the criteria of success.

Procedure: The children were tested on oral reading ability and divided into groups of equal reading ability, corresponding to the number of specimens to be studied with respect to a given reading problem. Each individual read all the specimens bearing upon the problem and grade in question. The learning factor was controlled by statistical means. (See Chapter II, *Investigations in the Hygiene of Reading,* Warwick and York, for details.)

Conclusions: (1) Size of Type: Eighteen-point type (height of small letters 2.75 mm.) is more readable in the first four grades than type which is smaller. Twenty-four-point type offers about the same reading difficulty in the second grade as does eighteen-point type. In the first grade twenty-four-point type is more readable than that which is smaller or larger. The question of its use in this grade should be one of expense rather than desirability. (2) Length of Line: The most desirable length of line for the first four grades lies around 100 millimeters. (3) Leading: There is no justification for more than 1.35 millimeters of leading in the third and fourth grades. The studies in the first and second grades are inconclusive. (4) Margin: There is no advantage to be gained in the first grade in making the right margin (margin on reader's right) irregular. There is an advantage to be gained in making the left margin irregular.

Bond, Guy L., "A Study of Auditory and Speech Characteristics of Poor Readers." Doctor's Dissertation, Columbia University. Sponsored by Professor A. I. Gates. Will probably be published in Teachers College *Contributions to Education* in 1935.

Character of Research: Experimental study to determine the relationship between auditory factors, speech defects and reading disability.

Problem: To compare a group of poor readers of the second and third grades, with a group of good readers, matched for age, schooling, and intelligence, in regard to auditory and speech characteristics.

Limitations of study: (1) Population was obtained from four New York City schools. (2) Sixty-four matched pairs were studied. (3) The visual characteristics of these populations were studied by Paul Fendrick.

Procedure: An extensive battery of individual auditory and speech tests was given to poor readers selected from second and third grades, of four New York City schools. The auditory measurements included: auditory acuity (measured by the 2-A Audiometer); auditory perception (a modification of the Seashore test rhythm); auditory blending (fusion); auditory discrimination; auditory memory. Two methods of finding speech defects were also utilized.

Matched cases were then selected from pupils in the same school, the good excelling the poor readers by at least one year in reading ability on a standardized test. These cases were also measured for auditory and speech characteristics. Comparisons were then made to determine the differences between the good and poor readers.

Conclusions: (1) A statistically significant difference was found in auditory discrimination favoring the good readers. (2) Significant differences favoring the good readers were found on various blending (or fusion) tests. (3) No significant differences were found between the two groups in speech defects. (4) Where a phonetic method of teaching reading predominated, 63% of the poor readers had a definite loss in auditory acuity, while only 4% of the good readers had a similar loss. There was no significant difference in auditory acuity between the groups of good and poor readers taught by the look-and-say method.

Buckingham, B. R., "The Typography of First Grade Textbooks." Independent study under the auspices of American Book Company, Ginn and Company, D. C. Heath and Company, and Houghton Mifflin Company, 1931. Unpublished. On file in Dr. Buckingham's office.

Character of Research: Experimental investigation of cost and readability of various type pages for first grade.

Problem: To find the readability of each of 24 specifications (involving specific sizes of type, lengths of line, and amounts of leading) and the cost of a book made according to each of these specifications.

Limitations of Study: (1) Twenty-four specimens of type page, using Monotype Number 8 type in 12-, 14-, and 18-point and Venetian in 24-point. (2) Three stories. (3) 306 usable returns from first-grade children.

Procedure: The preliminary work included: (1) choosing 3 stories of equal length (267 words) and of approximately equal difficulty; (2) studying the typography of the readers already used by the children to be tested; (3) printing each of the three stories in eight different set-ups; (4) preparing a comprehension test for each story; and (5) training

teachers in procedure and determining test conditions. The tests were given on two consecutive days. Every child whose record was used read three stories, each in a different set-up, under timed conditions and answered three sets of comprehension questions. A rotation scheme for reading different specimens was worked out to stabilize disturbing variables.

Specific Findings and Conclusions: (1) However figures on basis of size of type alone are compared, the 12-point type is always in the lead, with very little difference among the other three sizes. (2) When leading is considered with size of type, it is found that increasing the leading with a given size of type proves either advantageous or indifferent. (3) The 12-point type has a decided advantage from the point of view of cost over the other three sizes. In presenting results, length of line is disregarded because set-up of first-grade material is such that actually there is little difference in length of line when size of type is constant.

Conelley, Ross Earl, "The Effect of Position of Pupils in the Classroom upon Recognition and Recall of Printed Matter." Doctor's Dissertation, School of Education, University of Pittsburgh. Directed by Dr. Gerald A. Yoakam, 1932. Unpublished. Filed in the university library.

Character of Research: Experimental study of the effect of several factors on childrens' comprehension of different types of printed matter.

Problem: To measure the effect of position of pupils in the classroom upon ability to comprehend printed matter of the following types: (1) on a page with letters 1/1000th of an inch, six and a half point in size; (2) on flash cards; (3) on charts; (4) on lantern slide screen; (5) on blackboard. The effect of lighting and ventilation is also measured as a correlated problem.

Limitations of the study: (1) The study is limited to one group of children in one western Pennsylvania city. Six hundred and twenty pupils in twelve grades were tested, one at a time, for normal eyesight as measured by the Snellen test card. Four hundred ninety-seven pupils of normal vision were selected for the experiment. (2) Whenever possible, standardized tests were used to measure the effect of comprehension. Otherwise objective tests made by the experimenter were used. (3) All charts and lantern slides were tinted by teachers. (4) Instruments for taking the reading of temperature, light, and ventilation were those of standard make as used by experimenters in official government tests. (5) A special flash card machine was designed and built by the experimenter to measure the exact distance in inches from the flash cards to the eye of the pupil and to maintain an equal distance between each pupil and the flash card. (6) An instrument for measuring the true distance of distinct vision was also made and calibrated by the writer. This instrument consisted of a stereoscope with lenses removed, and with openings enlarged to allow clear vision.

Procedure: The experiment was conducted with 497 pupils with normal eyesight. The children were tested to determine the average true distance of distinct vision.

Thirty-six pupils from each of the four lower grades were arranged in three groups of twelve pupils each in such a way that the sum of the intelligence quotients of each group would be equal to the sum of the intelligence quotient of each of the other two groups in the same grade. Keeping the intelligence quotient of each group equal, the groups were arranged so that the sum of the reading scores of each group would be as nearly equal as possible.

In experiments with the flash card machine, the machine was placed in the center of the classroom which was twenty-five feet wide and thirty feet long. Pupils were arranged in three rows. The rows were ten, fifteen, and twenty feet, respectively, from the flash card machine. The pupils were so arranged that the sum total of the intelligence quotients of the pupils in each of the three rows was equal. There were forty-eight pupils arranged in each of the three rows, twelve from each of the first four grades.

In the experiments with reading charts, the charts were placed from suspended hooks at the top of the flash card machine and in other respects in the experiment, the classroom was arranged in the same fashion as described above. In the experiment with lantern slides, a screen was placed in approximately the same position as the flash card machine.

At a regular time daily, each grade was given a ten minute exercise in reading, either flash cards, lantern slides, or reading charts. The reading content of each of these types of reading matter was different. The same number of words was given to each pupil and the time of exposure was kept constant by use of the metronome. At the end of each week objective tests covering the work of the week was given. At the end of the fourth week a distinct variation in the results achieved by each of the three rows was noted. The first row of pupils retained a greater knowledge of materials presented than the second and third rows. The second row excelled the third row. During the last two weeks of experiments, the first and third rows of pupils changed places. Again those people nearest the materials presented retained more than those seated farther away. The ability of pupils to comprehend printed material on blackboards was determined in somewhat the same fashion.

In the experiment to determine the effects of inadequate lighting and improper ventilation, pupils remained in their own classrooms and were tested under the following conditions: (a) Adequate light and proper ventilation; (b) Proper ventilation but inadequate light; (c) Adequate light but improper

ventilation. In this part of the experiment, the adequacy of light and ventilation were measured by scientific instruments.

Conclusions: (1) The average true distance of distinct vision of 497 pupils having normal vision in grades one to twelve inclusive is 16.2 inches. This distance is from two to six inches less from that given in some textbooks. (2) The position of pupils in the classroom affects their ability to comprehend printed matter presented on flash cards, charts, lantern slides, screens and blackboards. (a) Pupils seated nearest the printed matter comprehend significantly more than those seated farther away. (b) Pupils seated in the center section of the classroom comprehend more, though not significantly more, than those seated in the left and right sections. (3) The effect of inadequate lighting on pupils' comprehension of printed matter is not necessarily significant in a thirty minute standardized test, nor is poor ventilation a significant factor in a test of this length.

Cosgrave, G. P., "The Relative Legibility of Horizontal Segments of Words." Doctor's Dissertation, Department of Psychology, University of Toronto. Directed by Professor E. A. Bott, 1928. Unpublished. Filed in university library.

Subject: Typography.

Problem: To test the theory advanced by Emile Javal that the upper portions of letters play a dominant part in perception of words.

Limitations of study: (1) six adult subjects; (2) one type face—10 point Monotype modern, number 1 a; (3) four measures of legibility.

Procedure: The reading material consisted of (1) ten lists of 15 words each, equivalent in number of ascending and descending letters and as far as possible in difficulty, and (2) twenty simple 50-word paragraphs in pairs, the two paragraphs of a pair having equal numbers of ascending and descending letters. Each list of words and one paragraph of each pair were mutilated on one of 10 forms by cutting a horizontal segment from the type face on a milling machine. The words both in mutilated and unmutilated form were exposed for one-tenth of a second in a modified Dodge mirror tachistoscope. Speech reaction times as measured by a Dunlap chronoscope and voice key and number of exposures necessary for perception were recorded. The time of reading each of the ten mutilated and ten unmutilated paragraphs was measured by stop watch and errors or hesitations in reading noted.

The measure of legibility for each form of mutilation was the ratio of the score for the mutilated to the corresponding score for the unmutilated material. All measures save errors in reading, intercorrelated highly and with this exception were weighted and combined to give a final legibility coefficient for each form of mutilation.

Findings and conclusions: The combined legibility coefficients were higher in every instance for mutilations in the upper than for comparable mutilations in the lower portions of words, thus supporting Javal's theory. A practical implication of this finding is that distinguishing features of letters should be introduced particularly in their upper portions.

Crider, Blake, "Ocular Dominance: Its Nature, Measurement, and Development." Doctor's Dissertation, Department of Psychology, Western Reserve University, June, 1934. Unpublished. Filed in graduate school library.

Character of Research: A study of ocular dominance by means of testing techniques.

Problem: To determine the relationship of ocular dominance to chronological age, hand preference, double images, sex, frequency of unilateral sighting, and miscellaneous testing situations.

Procedure: School children, numbering 784, from the kindergarten through the sixth grade, were tested individually. The chronological age, sex, intelligence quotient, and visual acuity were obtained from the school records. The presence of double images was determined by introspective reports from the subjects in answer to the question "How many fingers do you see?" while pointing. In order to determine the effect of frequency of sighting, the sightings varied from one per subject to 42 per subject.

Specific findings: (1) the distance of the point of fixation from the subject was not a factor in determining the sighting eye. (2) The hand used in holding the testing device or pointing was unrelated to the sighting eye. (3) Impartial eyedness decreases and definite eye preference increases with age increase. (4) Hand preference measured by a tapping device correlated +.16 with eye preference. (5) Subjects successfully suppressing the secondary image tended to have a more stabilized eye preference than those who were aware of the secondary image. (6) Eye dominance was unrelated to sex, intelligence and visual acuity. (7) Objectivity was enhanced by eliminating verbal reports from the subject, insisting that the subject hold his head erect and forward, placing the point of fixation directly in the median plane, requiring the subjects to keep both eyes open, and making the directions and routine uniform for all subjects. (8) It is impossible to express the percentage or frequency of left, right or impartial eyedness without knowing the kind of test used and the frequency of sighting of each subject. This observation explains the great discrepancy in percentages reported by various authors.

Cutright, Prudence and **Anderson, Walter A.,** "An Experimental Study of Pupil Failures in the First Grade." Curriculum research study, Minneapolis Public Schools, Minneapolis, Minnesota.

1934. Unpublished. Mimeographed copies available.

Character of Research: Experimental appraisal of nine factors in first grade failure together with a proposed plan of organization for the elimination of needless failures.

Problem: To determine the effect of such factors as mental immaturity, sex, living conditions, health habits and physical defects, pupil adjustment, lack of informational background, manual and ocular dominance, teaching method, and administrative policy upon success in learning to read. Failure to learn to read in the first grade has meant failure in promotion up to the present time.

Procedure: The experimental group was made up of 135 first grade failures. A control group of one hundred pupils was also obtained. Information for each pupil was secured from pupil interviews; tests of ability, achievement, handedness, and eyedness; teacher's estimates of behavior; and from the medical record. The data obtained in these various ways were utilized in the analysis of the nine factors in failure mentioned above.

Conclusions: (1) Many of the experimental group have neither the mental maturity nor the brightness to achieve in reading. (2) An excess of boys is singled out for failure, even at the first grade level. (3) Living conditions which are not conducive to the development of desirable attitudes toward study and school life contribute heavily to failure. (4) To some extent, poor health habits and physical defects are factors in failure at the first grade level. (5) Pupils in the failure group were unadjusted intellectually, physically, socially, and emotionally to a greater extent than those in the control group. (6) Little difference was found between the experimental and control groups on the handedness and eyedness tests. (7) The willingness on the part of the experimental group to guess at the words regardless of what they may be directs attention at the method of teaching reading which should be followed. (8) The policy of the administration must not be forgotten in any analysis of factors which operate in pupil failure, since failures vary from school to school according to beliefs of the administrator.

One outgrowth of the study of first grade failures was the desire on the part of the teachers in eight schools to experiment with some type of reorganized primary curriculum which would embody the following purposes: (1) To substitute individual standards of "child growth" for mass or group standards in academic achievement, or, in other words, to fit school activities to the child rather than to continue attempting to make every child fit a standard or group pattern. (2) To provide the individual child a longer uninterrupted-by-failure period for adjusting to the school situation and thus eliminate the fear of failure generated many times by parental pressure. The experiment is going on at the present time and preliminary results are most encouraging.

Davidson, Helen P., "A Study of Reversals in Young Children." Independent study made while psychologist in the Department of Child Guidance, Bedford Hills, New York, 1932. *Journal of Genetic Psychology,* December, 1934.

Problem: An experimental study to determine the extent to which unselected young children make reversal errors in two types of tests, one consisting of special geometric forms and one of words.

Limitations of study: Tests were given to approximately 50 kindergarten and 120 first grade pupils in four public schools. Stanford Binet I.Q.'s were available for all of these. The average I.Q. for the kindergarten pupils was 101.2 and for the first grade pupils was 100.26. The average I.Q. for the total 170 pupils was 100.53, the I.Q.'s ranging from 57 to 142. The average CA for kindergarten and first grade pupils was 5 years 8.8 months, and 6 years 8.4 months, respectively.

Both the form perception test and the word perception test were constructed in a similar manner. A geometric form or a word was printed at the left side and after it were five other forms or words, one being identical to the key and one its reverse. The pupils had to mark the one identical to the key. There were three practice and ten test exercises in the form test which was given first, and two practice and fifteen test exercises in the word test. The tests were given as group tests. There were no time limits. Only one form of each test was given.

Results: It was found that 93.9% of the kindergarten and 61.6% of the first grade children selected one or more reversed forms, and 82.6% of the kindergarten and 32.8% of the first grade children selected one or more reversed words.

The percentage of pupils making reversal errors decreased distinctly with increase of mental age and of chronological age. The correlation of mental age with form reversal errors was $-.312 \pm .049$, and that between mental age and word reversal errors was $-.409 \pm .044$. The correlations with chronological age were smaller.

There was some slight evidence of a possible sex difference, a larger percentage of first grade boys than of first grade girls making reversal errors. This was somewhat obscured by the fact that the boys were slightly duller than the girls. The difference, however, was less than five points in I.Q.

There is need for further investigation along similar lines, using larger numbers of pupils, but it is believed that the above findings have an important bearing on beginning reading as well as having significance for those interested in reading disabilities.

Editorial

Fortuitous Culture

THE CONVENTION theme of the recent meeting of the Department of Superintendence, "Social Change and Education," was given, to a great extent, a political interpretation, and there was considerable talk of liberalism versus conservatism.

Granting that the liberalizing of education is highly desirable, the question must very seriously be asked, will the injection of any amount of advanced social theory adapt our schools more successfully to the requirements of our shifting and changing social life? It would seem that success here must come from a more direct effort to understand and work with actual teaching situations. Rather than the controversies of right and left, educators need to consider concrete problems to which, in too many instances, they have been oblivious.

Take, for example, the matter of reading—the basis of our educational system. In *Vanity Fair* for April is an article entitled "Four Hundred Million Borrowed Books," which sets forth a situation of practical concern to school people. "In the United States last year," the author says, "almost a hundred million more books were taken out of the public libraries than were taken out five years ago."

One of the disappointments of education in the past has been that our schools taught numbers of people to read who nevertheless remained, in effect, illiterates. The depression seems to have increased enormously the degree of literacy among these people. What, exactly, is the nature of the forces that have thus accomplished actually what the schools succeeded in doing only superficially? With the utilitarian motive predominant in our schools, one query might be, have we been too pragmatic? Or, has schooling become too highly intellectualized and unrelated to the emotional solaces of books? Then too, the information given in this article raises the question of what is cultivated taste. There are indications that other forces affect taste more directly than schooling.

Beyond any doubt, the reading of books in its character and extent is the result of social experience and environment. Yet education, which is the most highly organized and the most purposeful of all life experiences, seems singularly weak in its influence on either the extent or the character of voluntary reading as compared with the adventitious and the accidental, if we are to judge from the facts presented in this article. For all that the schools, in years of effort, may do, some incident in social life may rouse a thirst for culture where before there had been complete indifference. Through this we gather that there is a "blind groping for enlightenment or release" to which educators, with all their talk of liberalism, are almost oblivious, and for which the schools seem ill-equipped to furnish light.

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